ON IDEAL CONVERGENCE OF DOUBLE SEQUENCES IN NEUTROSOPHIC FUZZY G-METRIC SPACES

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Abstract. The primary aim of this article is to introduce the concept of ideal convergence for double sequences in neutrosophic fuzzy G-metric spaces ($NFGMS$) with order q. We explore the fundamental properties of this concept, analyze $\mathcal{I}_2$-Cauchy double sequences, and examine $\mathcal{I}_2$ completeness in $NFGMS$. We provide examples of ideal convergent $NFGMS$ and discuss their algebraic and topological properties. Additionally, we investigate the $\mathcal{I}_2$-limit and $\mathcal{I}_2$-cluster points of sequences. We also present $\mathcal{I}_2$-statistical convergence, $\mathcal{I}_2$-lacunary statistical convergence, strong $\mathcal{I}_2$-Cesàro summability, and strong $\mathcal{I}_2$-lacunary summability with order q in NFGMS, along with their associated properties.